

# PATENT SPECIFICATION

5,592



Date of Application and filing Complete Specification: Sept. 22, 1948.

No. 24765/48.

Application made in Netherlands on Sept. 22, 1947.

Complete Specification Published July 25, 1951.

Index at acceptance:—Classes 5(ii), J3f(1: 2), J(3g6: 5); and 49, A8, B1(b: c: s).

## COMPLETE SPECIFICATION

### Improvements in or relating to the Flavouring of Foodstuffs

We, N. V. MAATSCHAPPIJ TOT EXPLOITATIE DER OLIEFABRIEKEN CALVE DELFT, a Company registered under the Laws of the Kingdom of the Netherlands, of Delft, Holland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 This invention relates to the flavouring of foodstuffs and particularly to foodstuffs of the type prepared for consumption by means of an aqueous liquid and also, if desired, with the application of heat:—

15 When foodstuffs of the above type are flavoured with a flavouring substance and are not prepared immediately for consumption it is often found that during the time between manufacture and preparation for consumption the flavouring substance has volatilised. For instance, a blancmange powder flavoured with almond oil may lose its flavour if kept too long after manufacture. This loss of flavour is accelerated because as a result of being mixed with the blancmange powder, the almond oil acquires a large surface area over which evaporation can take place.

20 Attempts have been made to limit volatilisation in such cases by dissolving the flavouring substances in liquids which reduce their vapour pressure. Such attempts however, have only met with moderate success. Greater success has been obtained by enclosing the flavouring substance in a capsule and including one such capsule in each packet of the foodstuff to be flavoured. The capsule containing the flavouring substance is added with the foodstuff to the aqueous liquid used for preparing the foodstuff for consumption. This method is, however, rather expensive and has the disadvantage that the substance from which the capsule is made only dissolves slowly in the aqueous liquid.

It is an object of the present invention to provide a process of preparing a composition for use in the flavouring of food-

stuffs (especially foodstuffs of the type 50 which are prepared for consumption by means of an aqueous liquid and also, if desired, with the application of heat), which gives a composition which does not have the above disadvantages.

The term "foodstuffs" is understood to relate to animal as well as human foodstuffs.

The present invention provides a process of preparing a flavouring composition 60 in which the flavouring substance is dispersed in a matrix of an edible material which is solid at room temperature, which comprises dispersing the flavouring substance in the liquefied edible material and converting the dispersion into solid particles mostly having a minimum size of not less than 0.1 mm.

The present invention further provides a process of flavouring foodstuffs which 70 comprises dispersing a substance in the liquefied edible material and distributing the dispersion so obtained in the foodstuff in the form of solid particles mostly having a minimum size of not less than 0.1 mm.

The term "mostly," as used in this specification refers to the weight and not number of particles; that is to say, at least 50% of the weight of the solid dispersion particles have a minimum dimension of not less than 0.1 mm. In most cases, it is advantageous to carry out the distribution in the foodstuffs of a dispersion in the form of solid particles mostly having a size between 0.5 and 3 mm. 80 Experiments have shown in the case of such particles, that evaporation of the flavouring substance is retarded to a satisfactory extent while the particles nevertheless dissolve at a satisfactory rate 80 when the foodstuffs are prepared for consumption, such as by heating in an aqueous liquid. Also particles of such a size can be distributed sufficiently uniformly in the foodstuff before packaging. 85 The particles may be spherical in shape or may be in the form of thin flakes. The latter form of particles may be obtained

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by spreading the dispersion on a drum in a layer of at least 0.1 mm. thick and cutting or breaking the layer into small flakes otherwise having the size mentioned.

The liquefied edible material in which the flavouring substance is dispersed may be a solution of an edible solid in a solvent capable of being readily volatilised. Such a solution may be converted to the edible solid after dispersion of the flavouring substance by evaporation of the solvent. Alternatively the liquefied edible material may be an edible colloidal solution which colloidal solution may be converted to an edible gel by gelation and/or evaporation of solvent. Again, the liquefied edible material may be a melted edible material which on cooling to room temperature, reverts to an edible solid.

The edible material in which the flavouring substance is dispersed should be selected with reference to the nature of the flavouring substance to be protected and the foodstuffs, with which the resultant flavouring composition is to be used. The material should, of course, be suitable for enclosing the dispersed flavouring substance sufficiently to protect the flavouring substance when the flavouring composition is kept. On the other hand when foodstuffs are prepared for consumption by treatment with an aqueous liquid, and also if desired, with heating, the material in which the flavouring substance is dispersed must dissolve in the aqueous liquid and/or melt as a result of the heating so that the flavouring substance together with the material in which it is dispersed can be distributed evenly throughout the foodstuff.

If the flavouring substance to be preserved is an oil, such as an essential oil, it may be dispersed in a solution or dispersion in water or alcohol of an edible material such as a protein like gelatine or a gum like agar-agar or gum arabic. In such instances the solution or dispersion may be converted to an edible solid by gelation. If desired the solution or dispersion containing the flavouring substance may contain sugar, glycerin, or any other material which facilitates solution of the flavouring composition according to the invention during the preparation of the foodstuff for consumption.

If the flavouring substance to be preserved is an aqueous material, it may be dispersed in a fatty body such as a fat or wax or other material. The latter material, when dissolved or melted in a solvent, should be capable of forming a two phase dispersion with the flavouring substance.

Highly concentrated molasses may also

be used as the material in which a flavouring substance may be dispersed.

It is an advantage in some cases to add solid fat or other substances which are soluble in liquid fat to a flavouring oil before the oil is dispersed. The amount of added fat or other substances should be such as to ensure that the dispersion formed solidifies at room temperature.

If desired, the particles of the dispersion may be added to a powdered foodstuff whilst the particles are damp so that when the powdered foodstuff and dispersion particles are mixed together, the particles of powdered foodstuff will attach themselves to the surface of the dispersion particles to make the latter less visible. The solidification of the damp dispersion particles may then be completed subsequently by evaporation of the solvent, in the case where the flavouring substance has been dispersed in a solution or by cooling if the flavouring substance has been dispersed in a melted solid or in a liquid capable of forming a gel.

#### EXAMPLE 1.

(a) A banana essence flavouring in an amount of 0.75 kg. is dispersed by stirring it into a warm mixture formed from 0.25 kg. gelatine, 0.5 kg. sugar and 1 kg. water. The sugar, if desired, may be omitted. The proportions of gelatine may vary and in the case of some essential oil essences, for example, for almond oil, it is preferable to increase the quantity of gelatine to 0.5 kg. After the banana essence is stirred it forms small particles of the inner phase of an emulsion, following which the warm dispersion is forced through a heated, perforated tube having 1 mm. openings. Particles which emerge from the openings consist of small spherical particles of the banana essence having the gelatine coating surrounding them and these particles are dropped on to a blancmange powder to be flavoured which has been spread out on a band conveyor and is moving continuously under the perforated tube. The drops of the dispersion fall on the blancmange powder and are covered thereby and set up to small dragees.

(b) As an alternative the dispersion above described may be cooled whereupon it forms a tough mass and by adding solid carbon dioxide (dry ice) to the dispersion it is made so stiff that it can be ground coarsely to particles of about 1 mm. size. These may be mixed into a blancmange powder.

(c) The dispersion may also be formed into small particles by means of a cutting machine consisting of a vertical revolving slicer situated in a suitable bowl which revolves slowly about a vertical

axis. In accordance with the modification, the dispersion is poured into the bowl of the cutter after about 3 kg. of cornflour have previously been placed in the bowl. When cooled, the dispersion forms a stiff gel. After another 2 kg. of cornflour have been added to avoid caking of the particles the cutter is put into operation. The size of the dispersion particles was checked by sifting which gave: 42% by weight from 2 to 4 mm., 47% by weight from 0.5 to 2 mm., and 11% up to 0.5 mm. The unsifted product is mixed with blancmange powder in the desired amount, for instance in the ratio of 2.5 parts of the unsifted product to 100 parts of the blancmange powder.

Following this example, essential oils, such as almond oil, may be mixed with liquids such as a solution or dispersion of agar-agar in water or alcohol.

#### EXAMPLE 2.

Fresh lemon juice is dispersed in hardened peanut oil (melting point 40° C.), by running the lemon juice into the melted fat while this is stirred at a temperature at which the fat partly sets to the consistency of gruel. The dispersion is distributed in the way described in Example I over a powder from which a source is prepared and the mixture used for preparing acid sauce.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A process of preparing a flavouring composition for foodstuffs in which the flavouring substance is dispersed in a solid matrix of an edible material which is solid at room temperature which comprises dispersing the flavouring substance in the liquefied edible material and con-

verting the dispersion into solid particles mostly having a minimum size of not less than 0.1 mm.

2. A process as claimed in Claim 1, wherein said particles have a minimum size between 0.5 and 3 mm.

3. A process as claimed in Claim 1 or 2 in which the flavouring substance is an essential oil and is dispersed in a solution of gelatine in water or alcohol.

4. A process as claimed in Claim 1 or 2 in which the flavouring substance is an aqueous liquid and is dispersed in a melted fat.

5. A process as claimed in any of the preceding claims wherein said particles are coated with the powdered foodstuffs to be flavoured.

6. A process of preparing a flavouring composition for foodstuffs substantially as herein described.

7. A flavouring composition for foodstuffs when prepared by the process claimed in any of the preceding claims.

8. A process of flavouring foodstuffs which comprises dispersing a flavouring substance in a liquefied edible material and distributing the dispersion so obtained in the foodstuff in the form of solid particles mostly having a minimum size of not less than 0.1 mm.

9. A process as claimed in Claim 8, wherein said particles have a minimum size between 0.5 and 3 mm.

10. A process of flavouring foodstuffs substantially as herein described.

11. Foodstuffs when flavoured by the process claimed in any of the Claims 8 to 10.

Dated this 22nd day of September, 1948.

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